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| APPLICATION NO.   | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO.     | CONFIRMATION NO. |
|---|-------------|----------------------|-------------------------|------------------|
| 09/894,073  | 06/28/2001  | Julie Ann Watts      | SVL9-2001-0002US1/2021P | 6518             |
| 7590  | 03/02/2004  |                      | EXAMINER                |                  |
| SAWYER LAW GROUP<br>P.O. Box 51418<br>Palo Alto, CA 94303 |             |                      | GODDARD, BRIAN D        |                  |
|   |             |                      | ART UNIT                | PAPER NUMBER     |
|   |             |                      | 2171                    |                  |

DATE MAILED: 03/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                        |                     |
|------------------------------|------------------------|---------------------|
| <b>Office Action Summary</b> | <b>Application No.</b> | <b>Applicant(s)</b> |
|                              | 09/894,073             | WATTS, JULIE ANN    |
|                              | <b>Examiner</b>        | <b>Art Unit</b>     |
|                              | Brian Goddard          | 2171                |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM  
 THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) Responsive to communication(s) filed on 26 November 2003.  
 2a) This action is **FINAL**.                    2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) Claim(s) 1-18 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 1-18 is/are rejected.  
 7) Claim(s) \_\_\_\_\_ is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on 28 June 2001 is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

1. This communication is responsive to Amendment A, filed 26 November 2003.
2. Claims 1-18 are pending in this application. Claims 1, 8, 9 and 16-18 are independent claims. In Amendment A, no claims were added or canceled, and claims 1, 2, 4, 8-10, 12 and 16-18 were amended. This action is made Final.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over the article entitled, "ARIES: A Transaction Recovery Method Supporting Fine-Granularity Locking and Partial Rollbacks Using Write-Ahead Logging" by Mohan et al. (hereinafter "Mohan") in view of U.S. Patent No. 5,983,225 to Anfindsen.

Referring to claim 1, Mohan discloses a method for selectively releasing locks on data as claimed. See sections 1.2-1.3, 2 and 5 for the details of this disclosure. Mohan teaches a method for selectively releasing locks on data, comprising the steps of:

(a) providing at least one savepoint [SaveLSN (See section 5.2)] in a transaction, wherein a first lock [write/update lock] and a second lock [read lock] are acquired after

the at least one savepoint [See first full paragraph on page 120], wherein the first lock is assigned to the at least one savepoint;

- (b) rolling back the transaction [See Fig. 8] to the at least one savepoint; and
- (c) releasing the first lock [See first full paragraph on page 120] assigned to the at least one savepoint.

Mohan does not explicitly teach the second lock being "assigned to the transaction" and being maintained after rolling back the transaction to the at least one savepoint as claimed. This however, is only because Mohan is silent on differentiation between locking/unlocking procedures during rollback being that the paper deals only with recovery after a system failure.

Anfindsen teaches a system and method similar to that of Mohan, including repeatable read and transaction consistency isolation wherein all read locks acquired by a transaction are assigned to the transaction and maintained until commit or abort, even if the transaction rolls back to a savepoint prior to the point of acquiring the read lock. See column 9, lines 25-67 of Anfindsen's specification for this disclosure. Anfindsen discloses the purpose of this practice to ensure that read data will not change until the transaction terminates (i.e., a read that is repeated will return the original row, unchanged).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to add Anfindsen's repeatable read and transaction consistency isolation procedures to the system and method of Mohan by assigning any read lock(s) ["second lock" in claim language] acquired after any given savepoint to the transaction

and maintaining these locks until commit or abort. One would have been motivated to do so in order to expand Mohan's system to deal with partial rollbacks caused by the transaction itself instead of just for failure recovery, guaranteeing that read data would not change until the transaction terminated, as provided by Anfindsen. One would have been further motivated to combine these references because of Mohan's disclosure of the importance of repeatable read in transaction recovery (See pages 144-145) and Anfindsen's disclosure of the importance of partial rollback to a savepoint (See columns 2 and 14).

Referring to claim 2, the system and method of Mohan in view of Anfindsen as applied to claim 1 above discloses the invention as claimed. See the portions of the references cited above for the details of this disclosure. Mohan v. Anfindsen teaches the method of claim 1, as above, wherein the providing step (a) comprises: (a1) providing a sequence of savepoints [Mohan: See section 5.2] in the transaction, wherein the first lock [write/update lock] is assigned to one of the sequence of savepoints [the savepoint immediately preceding it (Mohan: See section 5.2)] and the second lock [read lock] is assigned to the transaction [See above] as claimed.

Referring to claim 3, the system and method of Mohan in view of Anfindsen as applied to claim 1 above discloses the invention as claimed. See the portions of the references cited above for the details of this disclosure. Mohan v. Anfindsen teaches the method of claim 1, as above, wherein the rolling step (b) comprises: (b1) rolling back the transaction to one of a sequence of savepoints [Mohan: See section 5.2, particularly the first full paragraph on page 120] as claimed.

Referring to claim 4, the system and method of Mohan in view of Anfindsen as applied to claim 1 above discloses the invention as claimed. See the portions of the references cited above for the details of this disclosure. Mohan v. Anfindsen teaches the method of claim 1, as above, wherein the releasing step (c) comprises:

(c1) releasing the first lock assigned to one of a sequence of savepoints to which the transaction is rolled back [Mohan: See section 5.2, particularly the first full paragraph on page 120]; and

(c2) releasing any locks assigned to subsequent savepoints [Mohan: See same section], wherein the second lock assigned to the transaction [See discussion of claim 1 above] and any locks assigned to preceding savepoints [Mohan: See same section] are maintained.

Referring to claim 5, the system and method of Mohan in view of Anfindsen as applied to claim 4 above discloses the invention as claimed. See the portions of the references cited above for the details of this disclosure. Mohan v. Anfindsen teaches the method of claim 4, as above, further comprising: (c3) releasing another of the sequence of savepoints [Mohan: a prior savepoint (SaveLSN) during a second/nested rollback OR a subsequent savepoint (SaveLSN) from the one to which the transaction was rolled back] as claimed.

Referring to claim 6, the system and method of Mohan in view of Anfindsen as applied to claim 5 above discloses the invention as claimed. See the portions of the references cited above for the details of this disclosure. Mohan v. Anfindsen teaches the method of claim 5, as above, further comprising: (c4) reassigning at least one lock

[Mohan: See section 5.2] assigned to the another of the sequence of savepoints [accomplished by the PrevLSN & UndoNxtLSN fields (pointer(s) to the most recent savepoint after rollback) in undone (CLR'd) log records] to a preceding savepoint [the most recent savepoint after rollback (i.e. the savepoint (SaveLSN) to which the transaction was rolled back)] as claimed.

Referring to claim 7, the system and method of Mohan in view of Anfindsen as applied to claim 5 above discloses the invention as claimed. See the portions of the references cited above for the details of this disclosure. Mohan v. Anfindsen teaches the method of claim 5, as above, further comprising: (c4) maintaining knowledge of the released another of the sequence of savepoints [in the transaction log (Mohan: See sections 3 & 5.2)], such that if the transaction is rolled back to a preceding savepoint, the at least one lock assigned to the released another of the sequence of savepoints is released [See discussion of claims 5 & 6 above] as claimed.

Claim 8 is rejected on the same basis as claims 1-4. See the discussions regarding claims 1-4 above for the details of this disclosure.

Claims 9-15 are rejected on the same basis as claims 1-7 respectively. See the discussions regarding claims 1-7 above for the details of this disclosure. In particular, Mohan's (as modified by Anfindsen) method described with regard to claims 1-7 above is implemented on a computer readable medium as claimed. See section 13.1 of Mohan's article for the details of this disclosure.

Claim 16 is rejected on the same basis as claim 8. See the discussions regarding claims 8-15 above for the details of this disclosure.

Claim 17 is rejected on the same basis as claim 1. See the discussion regarding claim 1 above for the details of this disclosure. See also section 13.1 of Mohan's article for the disclosure of the "system".

Claim 18 is rejected on the same basis as claim 17. See the discussions regarding claims 1 and 17 above, as well as the relevant portions of the references cited therein, for the details of this disclosure.

#### ***Response to Arguments***

4. Applicant's arguments with respect to claims 1-18 have been considered but are moot in view of the new ground(s) of rejection.

#### ***Conclusion***

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent No. 6,009,425 to Mohan and the articles by Bradshaw and Kornacker et al. are each considered pertinent to applicant's claimed invention.

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

Art Unit: 2171

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian Goddard whose telephone number is 703-305-7821. The examiner can normally be reached on M-F, 9 AM - 5 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Safet Metjahic can be reached on 703-308-1436. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

bdg  
26 February 2004

  
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